

**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY TITLE V PERMIT NO. 1000108
APS - Cholla Power Plant**

I. INTRODUCTION

This Title V permit is for the operation of the Arizona Public Service Company (APS), Cholla Power Plant (Cholla), located approximately two miles east of the town of Joseph City on Interstate 40, in Navajo County, Arizona, and approximately 200 miles northeast of Phoenix at an elevation of 5019 feet above sea level.

A. Company Information

Facility Name: Cholla Power Plant
Mailing Address: P.O. Box 188, Mail Station 4451, Joseph City, Navajo County, AZ 86032
Facility Address: I-40 Frontage Road, Joseph City, Navajo County, AZ 86032

B. Attainment Classification

The Cholla Power Plant area is designated by the Environmental Protection Agency (EPA) as an attainment area for all criteria pollutants.

II. PROCESS DESCRIPTION

The Cholla Power Plant presently consists of four coal-fired steam generating units, associated air pollution control devices and auxiliary equipment necessary to produce electricity. Units 1, 2 and 3 are owned by APS and Unit 4 is owned by PacifiCorp. All four units are operated by APS. Unit 1 was completed in 1962 and has a net accredited megawatt capacity of 110 megawatts. Units 2 and 3 were completed in 1978 and 1980 with net accredited megawatt capacities of 245 and 260 megawatts, respectively. Unit 4 was placed in commercial operation in 1981 with a net accredited megawatt capacity of 380 megawatts. As for Unit 5, which was then permitted by USEPA under EPA PSD Permit (NSR 4-102, AZP 78-01) and by the Arizona Department of Health Services (ADHS) under Installation Permit No. 1116, preliminary construction was commenced in 1980 and further construction was halted that same year. On November 13, 1985, ADHS notified APS in writing that the ADHS installation permit was canceled and the EPA PSD permit expired on December 31, 1984.

The power generated by Cholla plant is distributed to North Phoenix, APS' Saguaro Power Plant near Red Rock, north of Tucson, Flagstaff and local communities. The maximum process rates and operating hours of the steam units at Cholla are summarized in Table 1.

Table 1: Maximum process rates and operating hours

Emission Unit	Hours/yr	MW	MW-hr/yr
Steam Boiler Unit 1	8,760	125	1,095,000
Steam Boiler Unit 2	8,760	280	2,452,800
Steam Boiler Unit 3	8,760	280	2,452,800
Steam Boiler Unit 4	8,760	425	3,723,000

Total	9,723,600
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Process: Cholla is a Steam Electric Station, Standard Industrial Code (SIC) 4911 Electric Generation, consisting of four units (Units 1, 2, 3 and 4) which are coal-fired steam boilers with Source Classification Code (SCC) #1-01-002-26. Pulverized coal is tangentially fired into the dry bottom furnace. Coal is obtained from the McKinley Mine near Gallup, New Mexico. The coal is transported 115 miles to Cholla using trains and unloaded at a “coal handling” facility which directs coal to either the four units, a low sulfur coal pile, or a main coal pile. Two track feeders systems, “old” and “new”, are used in directing the coal. The old track feeders can send coal to the four units or to the low sulfur coal pile where it can later be reclaimed, while the new track feeders can send coal to the four units or the main coal pile. The main coal pile contains approximately a 45 day supply of coal. Coal unloaded at the coal handling facility is released through the bottom of the train rail cars to one of two large grates known as grizzlies. The coal collected below the grizzly at the old track feeders is loaded to a coal conveying belt which travels to coal crusher tower #1 where, the coal can be directed either to the low sulfur coal pile or it can be crushed and directed to the Unit 1 silos or to coal crusher tower #2 where it can be conveyed to the silos for Units 2, 3, or 4. Reclaim off of the low sulfur pile, which is uncrushed, is pushed by dozer into the grizzly at the old track feeders and thereby enters the coal handling system via crusher tower #1 where it is crushed and then directed to the Unit 1 silos or via a reversible belt to crusher tower #2 for transport to Units 2-4. The coal collected below the grizzly at the new track feeders is loaded to a coal conveying belt which travels to coal crusher tower #2. The crusher tower reduces the size of the coal before transporting the coal to Unit 1 (via crusher tower #1) or to the transfer tower #2 which sends it to the main pile or sends the coal to Units 2, 3, and 4 via the transition tower. Reclaim off of the bottom of the main piles goes to transfer tower #2 (via crusher tower #2) and is transported to Units 1-4. The crusher/transfer towers coal conveyor belts feed the top of coal silos of each steam boiler units. All unit silos feed coal gravitationally to feeders which supply each pulverizer where the coal is ground to the consistency of talcum-powder before firing in the furnace. Emergency diesel generators are located at Units 2, 3, and 4 for purposes of safely shutting a Unit down in a loss of off-site power.

Fuel: All four units at Cholla combust sub-bituminous coal to heat high purity water to create super-heated steam which is used as the thermodynamic medium which drives the turbines/generators to produce electricity. Unit 1 uses natural gas as the warmup/stabilization fuel and Units 2, 3, and 4 use diesel fuel #2. All warm up/stabilization fuels are fired less than one percent of total unit operating time. Historical operating data indicates this to be approximately 0.7 percent of total heat input on Unit 1 and approximately 0.3 percent on Units 2, 3, and 4. Condenser cooling for Units 1 and 2 are provided by Cholla Lake, while Unit 3 and 4 have mechanical draft cooling towers with Unit 3 receiving make-up water from the lake and Unit 4 from the well field.

Unit 4 has a waste oil burning system which injects on-spec used oil and/or used oil fuel into the furnace for energy recovery purposes, and is co-fired with coal and performed on a periodic basis. The total heat input from this activity is typically less than 0.1 percent of total heat input to Unit 4 on an annual basis. Diesel fuel is used in the emergency generators located at Units 1 through 4.

Typical characteristics of the coal burned in the Units are:

Heat Content	10,000 Btu/lb
Sulfur	0.45% by weight
Ash	15% by weight
Moisture	14% by weight

Table 2 below presents a list of different operating scenarios for all units.

Table 2: Operating Scenarios

Source	Startup and Stabilization	Normal Operating Scenarios	Alternate Operating Scenarios
Steam Unit 1	Natural gas	Coal	
Steam Units 2 and 3	Fuel Oil No. 2	Coal	
Steam Unit 4	Fuel Oil No. 2	Coal	Co-firing coal and used oil
			Co-firing coal and used oil fuel

Note: Used oil and/or used oil fuel may be burned up to a maximum feed rate of 20 gallons per minute while co-firing coal at a minimum of 230 gross MW.

Control Equipment: Cholla utilizes scrubbers, mechanical dust collectors, baghouses and electrostatic precipitators to control emissions of particulate matter and lime absorber towers for removal of sulfur dioxide emissions. Unit 2 and 3 share a common stack and therefore, Unit 3 gases are not scrubbed. Instead, coal with low sulfur will be combusted if Unit 3 is operated alone. Table 3 summarizes the controls in use and their rated removal efficiency.

Table 3: Air quality controls

Equipment	PM	SO _x	NO _x
Unit 1	<i>Primary</i> - Mechanical dust collector, 55% design efficiency <i>Secondary</i> - Venturi flooded disc scrubber, 98% particulate removal	2 Venturi Flooded disc scrubbers/ absorber with lime reagent, 80% SO ₂ removal	Tangential firing in furnace
Unit 2	<i>Primary</i> - Mechanical dust collector, estimated 70% efficiency <i>Secondary</i> - Venturi flooded disc scrubber, 98% particulate removal	4 Venturi Flooded disc scrubbers/ absorber with Lime reagent, 85% SO ₂ removal	Tangential firing in furnace with closed coupled over - fired air (OFA)
Unit 3	Hot side Electrostatic Precipitator, 99% particulate removal	Use of low sulfur coal when Unit 3 is operated alone	Tangential firing in furnace with closed coupled over - fired air (OFA)
Unit 4	Hot side Electrostatic Precipitator, 99% particulate removal	Slip - stream absorber with Lime reagent, 95% SO ₂ removal	Tangential firing in furnace with closed coupled over - fired air (OFA)
Fly ash Silo	Baghouse	N/A	N/A
Lime Silo	Baghouse	N/A	N/A
Lime Slaker Vent	Wet scrubber	N/A	N/A
Coal Handling Facility	Wetting systems with chemical suppressant	N/A	N/A

N/A - Not applicable

III. EMISSIONS CALCULATIONS

The Cholla plant has the capability of operating under different scenarios as outlined in Section II of this Technical Remarks document. Typical operating parameters of the turbines and the steam units are given in Table 4. Table 5 summarizes the potential to emit (PTE), allowable emissions, test results, and the emissions inventory (EI) for these units. The emission factors used in the table to calculate the potential to emit are from AP-42 (1/95 ed.). The allowable emissions are calculated using the standards under 40 CFR 60, Subpart D and Da, A.A.C. R18-2-703, and Operating Permit No. M170397P3-00. The reader is advised to peruse the permit application for HAPs emissions calculations.

Table 4: Typical Operating Parameters

Description	Steam Unit 1	Steam Unit 2	Steam Unit 3	Steam Unit 4	Whole Plant
Maximum rated hourly process rate, MMBtu/hr	1,477	5,940	5,940	6,858	20,215
Maximum annual process rate, MMBtu/yr	12,942,374	52,034,400	52,034,400	60,076,080	177,087,254
Maximum hourly coal feed rate, lb/hr	136,800	550,000	550,000	635,000	1,871,800
Maximum annual coal usage, ton/yr	599,184	2,409,000	2,409,000	2,781,300	8,198,484
Gross Megawatt rating, MW	125	280	280	425	1,110
Heating value of coal (Btu/lb)	10,800	10,800	10,800	10,800	na
Maximum feed rate of used oil, gallons/minute	na	na	na	20	20
Maximum annual usage of used oil, 10 ³ gallons/yr	na	na	na	200	200
Heat value of fuel oil no. 2, Btu/gallon	140,000	140,000	140,000	140,000	na
Sulfur content of coal, weight percentage	0.45	0.45	0.45	0.45	0.45
Ash content of coal, weight percentage	15	15	15	15	15
Moisture content of coal, weight percentage	14	14	14	14	14

Some emission factors used by APS in its permit application are from EPA 450/4-90-003. While the 1/95 ed. AP-42 emissions factors are more recent and more accurate than the emission factors used by APS, the resulting increases (and decreases in some cases) in calculated emissions do not change the source category status, and do not trigger any new applicable requirements. Therefore, the use of emission factors from EPA 450/4-90-003 to calculate emissions is acceptable. The formula used to calculate the uncontrolled emissions from units burning coal is as follows:

$$\text{Emissions (tpy)} = \text{Emission Factor (lb/ton)} \times \text{Net Heat Rate (Btu/KWh)} \times \text{Max. Generating Capacity (KW)/Heating Value of Fuel (Btu/lb)/2000 (lb/ton)} \times 8760 \text{ (hr/yr)/2000 (lbs/ton)}$$

Representative emissions from the Cholla plant are presented in Table 5. They may be used for the following purposes:

- (i) Ascertaining “major source” status of the Cholla plant pursuant to CAA Sec 501 (2);
- (ii) Comparing source potential-to-emit with emission rates allowable by relevant standards; and
- (iii) Comparing source potential-to-emit with emissions inventory and test data.

This comparison serves as a summary of existing information on emissions from the Cholla plant. These emissions calculations are not meant to establish any baseline emissions levels. These emissions figures (except for the ALLOWABLE emissions) are not meant to be emissions limitations of any form.

Table 5: Comparison among PTE, Allowable Emissions, Test Data, and EI

Unit	Pollutant	PTE (tpy)	Allowable ¹ (tpy)	Test Data (tpy) ²	EI 1996 (tpy)
Boiler Unit 1	PM	629.14	1,222.7	238.3	233.90
	SOx	943.71	6,469.3	1,061.0	663.30
	NOx	4,314.10	n/a	n/a	1,520.60
	VOCs	1.70	n/a	n/a	1.50
	CO	149.80	n/a	n/a	84.10
Boiler Unit 2	PM	2,168.10	2,601.7	286.2	85.90
	SOx	1,897.09	20,813.8	n/a	820.70
	NOx	17,344.80	18,212.0	7,310.8	2,886.40
	VOCs	6.98	n/a	n/a	4.00
	CO	602.30	n/a	n/a	217.30
Boiler Unit 3	PM	1,806.75	2,601.7	260.2	160.50
	SOx	18,970.88	31,220.6	n/a	6,959.40
	NOx	17,344.80	18,212.0	7,440.9	3,017.10
	VOCs	6.98	n/a	n/a	3.70
	CO	602.30	n/a	n/a	202.70
Unit 2/3	SOx	20,867.96	41,627.5	n/a	n/a
Boiler Unit 4	PM	2,085.98	3,003.8	300.4	74.00
	SOx	17,226.50	24,030.4	14,298.1	3,715.90
	NOx	20,025.40	21,026.6	9,882.5	2,598.30
	VOCs	8.06	n/a	n/a	3.40
	CO	695.30	n/a	n/a	187.50

Unit		Pollutant	PTE (tpy)	Allowable ¹ (tpy)	Test Data (tpy) ²	EI 1996 (tpy)
Coal handling	Old track	PM	0.31	302.0	n/a	n/a
	New track	PM	1.14	374.2	n/a	n/a
Lime silo Baghouse		PM	0.43	84.0	n/a	n/a
Lime slaker vent wet scrubber		PM	3.43	115.1	n/a	n/a
Fly ash silo Baghouse		PM	8.59	249.2	n/a	8.59
Cooling tower 3		PM	36.16	587.0	n/a	28.60
Cooling tower 4		PM	37.45	589.9	n/a	14.30

Note: 1 The allowable emissions in tpy are obtained assuming 8760 hours of operation per year.
2 Performance testing data from 1997 and maximum hourly heat input were used to calculate the tonnage.

IV. COMPLIANCE HISTORY

A. Inspections

Inspections are being regularly conducted on this source to ensure compliance with the permit conditions. Table 6 summarizes some of the recent inspections that have been conducted on the source and the results of the inspections.

Table 6: Inspection Results

Inspection Date	Type of Inspection	FAR No.	Results
May 14, 1992	Level 2	2260	Routine inspection indicated all emission units were operating below the applicable standards. A new team was dedicated for the maintenance of the CEMs.
September 15, 1994	Level 2	2559	Inspection of Unit #2 CEM Part 75 certification. The tests passed the RATA requirement.
October 27, 1994	Level 2	11664	Inspection of Unit #1 CEM Part 75 certification. The tests passed the RATA requirement.
December 13, 1994	Level 3	11915	Inspection of Unit #3 CEM Part 75 certification. The tests passed the RATA requirement.
August 14, 1996	Level 2	15902	Routine unannounced inspection. All CEMs indicated emissions below standards and all control equipment was in good operating condition.

October 1, 1996	Level 0	16161	Inspection conducted after receiving a complaint. APS had leaks in the ductworks and corrected the problem appropriately. Excess emissions reports were submitted for all exceedances.
June 4, 1997	Level 2	17565	Inspection conducted after complaints received from public. Review of records showed no correlation to the dates and times of the complaints.
October 8, 1997	Level 2	18213	The annual level 2 inspection revealed that the compliance coal pile had been depleted to 15,000 tons, in violation of 32,000 tons requirement specified in Permit No. M170397P3-00. NOV No. 18274 was issued as a result.
December 4, 1997	Level 2	18610	The inspection indicated that emissions were below standards.
November 4, 1998	Level 2	NRO-20605	The annual level 2 inspection indicated compliance with all requirements specified in Permit No. M170397P3-00.

B. Excess Emissions

The majority of the excess emissions reported are associated with opacity exceedance. The table below lists, for each steam boiler unit, excess emissions and their primary cause:

Table 7. Opacity exceedance and primary cause

Unit No.	Opacity Exceedance Counts	Duration	Primary Cause Description
1	88	Jan. '97 - June '98	Startup/load ramping, shutdown, and process/air pollution control equipment malfunction etc.
2	76	Jan. '97 - June '98	Startup/load ramping, shutdown, and process/air pollution control equipment malfunction etc.
3	82	Jan. '97 - June '98	Startup/load ramping, shutdown, and process equipment malfunction etc.
4	47	Jan. '97 - June '98	Startup/load ramping, shutdown, and process equipment malfunction etc.

C. Testing

The results of the three latest compliance tests have been summarized in Table 8 on next page. Results show that the units are in compliance with the applicable standards.

D. Compliance Certifications

After the issuance of this Part 70 permit, the Permittee will be required to submit compliance certifications every six months as indicated in Section VII of Attachment "A" of the permit. APS-Cholla has clearly specified in Section A1.16 of the permit application that it operates all emission units in compliance with applicable requirements and will continue to comply with all applicable requirements under the existing operating permits.

APS-Cholla has specified in Section A1.17 of the permit application that it will submit an annual compliance certification report which will identify the status of compliance in terms of continuous or intermittent compliance. This permit will require that APS-Cholla submit the compliance certification on a semi-annual basis. The semi-annual compliance certification will be signed by the responsible official attesting to the truth, accuracy, and completeness of the information provided. The certification will include information pertaining to the methods used for determining the compliance status of the sources of emissions from APS-Cholla operations. The information will be based on monitoring results compiled over the reporting period as prescribed in the permit.

Table 8. Test Results

Date	Unit Tested	Pollutant Tested	Tested Emission Rate	Allowable Emission Rate	Results
Sept 3 & 4, 1997	Unit 1	PM SOx	54.4 lb/hr 0.164 lb/MMBtu	221.2 lb/hr 1.0 lb/MMBtu	Units were tested at full load when firing coal and passed for all three pollutants.
May 6 & 20, 1997	Unit 2	PM NOX	0.011 lb/MMBtu 0.281 lb/MMBtu	0.10 lb/MMBtu 0.70 lb/MMBtu	
	Unit 3	PM NOX	0.010 lb/MMBtu 0.286 lb/MMBtu	0.10 lb/MMBtu 0.70 lb/MMBtu	
Dec 22, 1997	Unit 4	PM SOx NOX	0.010 lb/MMBtu 0.476 lb/MMBtu 0.329 lb/MMBtu	0.10 lb/MMBtu 0.80 lb/MMBtu 0.70 lb/MMBtu	
Oct 15, 1996	Unit 1	PM SOx	75.54 lb/hr 0.187 lb/MMBtu	229.4 lb/hr 1.0 lb/MMBtu	Units were tested at full load when firing coal and passed for all three pollutants.
Sept 10, 1996	Unit 2	PM NOX	0.009 lb/MMBtu 0.264 lb/MMBtu	0.10 lb/MMBtu 0.70 lb/MMBtu	
Sept 11, 1996	Unit 3	PM NOX	0.022 lb/MMBtu 0.296 lb/MMBtu	0.10 lb/MMBtu 0.70 lb/MMBtu	
Sept 4, 1996	Unit 4	PM SOx NOX	0.006 lb/MMBtu 0.569 lb/MMBtu 0.403 lb/MMBtu	0.10 lb/MMBtu 0.80 lb/MMBtu 0.70 lb/MMBtu	

Aug 29, 1995	Unit 1	PM SOx	79.08 lb/hr 0.168 lb/MMBtu	226.5 lb/hr 1.0 lb/MMBtu	Units were tested at full load when firing coal and passed for all three pollutants.
Aug 14-16, 1995	Unit 2	PM NOX	0.018 lb/MMBtu 0.328 lb/MMBtu	0.10 lb/MMBtu 0.70 lb/MMBtu	
Aug 16, 1995	Unit 3	PM NOX	0.009 lb/MMBtu 0.356 lb/MMBtu	0.10 lb/MMBtu 0.70 lb/MMBtu	
Aug 18 & 30, 1995	Unit 4	PM SOx NOX	0.010 lb/MMBtu 0.536 lb/MMBtu 0.375 lb/MMBtu	0.10 lb/MMBtu 0.80 lb/MMBtu 0.70 lb/MMBtu	

V. APPLICABLE REGULATIONS VERIFICATION

The Permittee has identified the applicable regulations that apply to each unit in its permit application. Table 9 summarizes the findings of the Department with respect to applicability or non-applicability of applicable regulations that apply to each unit. Installation Permit and other previous permit conditions are discussed under Section VI of this technical review document.

Table 9. Applicability Verification

Unit ID	Contract or const. date	Control Measure	Applicable Regulations	Verification
Unit 1	1961 or before	Mechanical Collector and Scrubber/Absorber	A.A.C. R18-2-702.B A.A.C. R18-2-702.C A.A.C. R18-2-703.A A.A.C. R18-2-703.B A.A.C. R18-2-703.C.1 A.A.C. R18-2-703.G.1 A.A.C. R18-2-703.J A.A.C. R18-2-703.K 40 CFR 72 40 CFR 73 40 CFR 75 Permit #1247	The contract-awarded date of this unit predates the enactment of the Act. Since the heat input is 1,477 MMBtu/hr (>250 MMBtu/hr), this unit is subject to R18-2-703. NOx standards are not applicable to this source because the start-up date is prior to May 30, 1972. For the same reason, the SOx standard of 1.0 lb/MMBtu applies.

Unit ID	Contract or const. date	Control Measure	Applicable Regulations	Verification
Unit 2	5/9/72	Mechanical Collector and Scrubber/Absorber	40 CFR 60.40 40 CFR 60.41 40 CFR 60.42(a) 40 CFR 60.43(a) A.A.C. R18-2-903.1 A.A.C. R18-2-903.2 40 CFR 60.44(a) 40 CFR 60.45(a) 40 CFR 60.45(c) 40 CFR 60.45(e) 40 CFR 60.45(f) 40 CFR 60.45(g) 40 CFR 60.46(a) 40 CFR 60.46(b) 40 CFR 60.46(d) 40 CFR 60.43a(a) 40 CFR 60.43a(g) 40 CFR 60.46a(c) 40 CFR 60.46a(d) 40 CFR 60.46a(e) 40 CFR 60.46a(g) 40 CFR 60.46a(h) 40 CFR 60.47a(b) 40 CFR 60.47a(e) 40 CFR 60.47a(f) 40 CFR 60.48a(a) 40 CFR 60.48a(c) 40 CFR 60.49a(b) thru (g) 40 CFR 72 40 CFR 73 40 CFR 75 Installation Permit No. 1037 PSD Permit #M170843S1-98	The sulfur dioxide standard when burning coal is 0.8 lb/MMBtu heat input according to PSD Permit #M170843S1-98. For the same reason, other requirements for the sulfur dioxide are subject to Subpart Da. For NOx, PM and opacity, Subpart D applies because the contract-awarded date of this unit is after August 17, 1971.
Unit 3	5/9/72	Electrostatic Precipitator	40 CFR 60.40 40 CFR 60.41 40 CFR 60.42(a) 40 CFR 60.43(a) A.A.C. R18-2-903.3 40 CFR 60.43(c) 40 CFR 60.44(a) 40 CFR 60.45(a) 40 CFR 60.45(b) 40 CFR 60.45(c) 40 CFR 60.45(e) 40 CFR 60.45(f) 40 CFR 60.45(g) 40 CFR 60.46(a) 40 CFR 60.46(b) 40 CFR 60.46(d)	The contract-awarded date of this unit is after August 17, 1971, which subjects the unit to Subpart D. I.P. No. 1037 for Units 2 & 3 was issued on July 6, 1973 and permitted Cholla to install a common stack as such that both units would comply with SO2 Emissions standards as if they constituted one emission discharge point, which subjected Unit 3 to the 1.2 lbs/MBtu standard specified under A.A.C. R18-2-903.3.c.i. SO2 Emission monitoring requirement is subject to 40 CFR 60.47a, as specified in PSD Permit #M170843S1-98.

Unit ID	Contract or const. date	Control Measure	Applicable Regulations	Verification
			40 CFR 60.47a(b) 40 CFR 60.47a(e) 40 CFR 60.47a(f) 40 CFR 72 40 CFR 73 40 CFR 75 Installation Permit No. 1037 PSD Permit #M170843S1-98	
Unit 4	3/20/74	Electrostatic Precipitator and Absorber	40 CFR 60.40 40 CFR 60.41 40 CFR 60.42(a) 40 CFR 60.43(a) A.A.C. R18-2-903.1 A.A.C. R18-2-903.2 40 CFR 60.43 (c) 40 CFR 60.44(a) 40 CFR 60.45(a) 40 CFR 60.45(b) 40 CFR 60.45(c) 40 CFR 60.45(e) 40 CFR 60.45(f) 40 CFR 60.45(g) 40 CFR 60.46(a) 40 CFR 60.46(b) 40 CFR 60.46(d) 40 CFR 72 40 CFR 73 40 CFR 75 I.P. #1247	The contract-awarded date of this unit is after August 17, 1971, which subjects the unit to Subpart D. The sulfur dioxide standard of 0.8 pounds per MMBtu heat input is imposed under A.A.C. R18-2-903.1.
Fly Ash Handling	1988	Baghouse	A.A.C. R18-2-702.B & C A.A.C. R18-2- 730.A	Fly ash handling is a unclassified source and subject to A.A.C. R18-2- 730.
Lime Silo	1994	Baghouse	A.A.C. R18-2-702.B & C A.A.C. R18-2- 730	Lime silo is a unclassified source and subject to A.A.C. R18-2- 730.
Lime Slaking system	1994	Wet Scrubber	A.A.C. R18-2-702.B & C A.A.C. R18-2- 730	Lime slaking is a unclassified source and subject to A.A.C. R18-2- 730.
Coal Preparation plant	1961	Dust Suppressants Wetting system	A.A.C. R18-2-702.B & C A.A.C. R18-2- 716	The plant is an existing source because construction was commenced prior to October 24, 1974.
Cooling Towers #3 & 4		Dust Suppressants	A.A.C. R18-2-702.B & C A.A.C. R18-2-730	Cooling towers are unclassified sources and subject to A.A.C. R18-2- 730.

VI. PREVIOUS PERMITS AND CONDITIONS

A. Previous Permits

Date Permit Issued	Permit No.	Application Basis
July 6, 1973	1037	Installation of Steam Boiler Units 2 and 3
September 24, 1975	1093	Installation of Steam Boiler Units 2 and 3
January 30, 1985	0330-85	Renewal of Operating Permit No. 0306-84
January 14, 1988	0357-88	Renewal of Operating Permit No. 0330-85
June 8, 1993	1247	Installation of Flue Gas Desulfurization Systems on Units 1 and 4
September 23, 1993	M170843S1-98	PSD Permit for Modification of Flue Gas Desulfurization System on Unit 2
April 6, 1995	M170397P3-00	Operating Permit
February 3, 1998	1000720	Minor Permit Revision to Permit No. M170397P3-00
The effective date of this permit shall be the date the initial Title V permit becomes effective, or January 1, 2000, whichever is earlier	1000664	Significant Permit Revision to Permit No. M170397P3-00

B. Previous Permit Conditions

1. Installation Permit No. 1037

This is the initial permit for installation of the Steam Boiler Units 2 and 3, all necessary auxiliary equipment, air contaminant control devices, and the 550 foot chimney. The permit only required that Cholla “submit quarterly reports on progress and any revisions that occur...”.

2. Installation Permit No. 1093

This permit is for continuation of the installation of the Steam Boiler Units 2 and 3, all necessary auxiliary equipment, air quality control equipment and the 550 foot common stack. Some of the relevant conditions of this permit are as follows:

- a. Unit 3 shall not be operated independently of Unit 2 and its scrubbing system, unless it is meeting Arizona’s regulations on sulfur oxides and particulate emissions.
- b. A minimum of 32,000 tons of low sulfur coal shall be maintained in a separate pile. This coal, when burned, shall meet the emission limitation of 0.8 lbs. SO₂ per MBtu.
- c. In the event of a breakdown of the Unit 2/3 sulfur dioxide control system which leads to emissions in excess of the limit of 0.8 lbs. SO₂ per MBtu, and it is estimated that the breakdown will last more than 24 hours, Cholla will load only low sulfur coal into the silos in

order to bring Unit 2/3 within the limit. Cholla will stop loading regular coal into the silos during this breakdown condition until the duration of the breakdown can be estimated.

- d. Cholla will operate and maintain continuous monitoring equipment for the measurement of SO₂ and NO_x emissions.
- e. If an upset of operations or a breakdown of equipment occurs during an air pollution emergency, Cholla shall transfer as much generating load as possible to other facilities or purchase energy from neighboring utilities located outside the emergency area.

3. Operating Permit No. 0330-85

This permit was for the renewal of permit No. 0306-84. Some of the relevant conditions of this permit are as follows:

- a. The Permittee shall operate and maintain continuous stack emission monitors in both inside flues of the stack which services Unit 2 and Unit 3. These monitors shall measure opacity and sulfur dioxide emissions and shall be operated, maintained, and calibrated in accordance with manufacturer's specifications.

The condition above has been carried over in essence to the Part 70 renewal permit. Hence, this condition is hereby being replaced by the corresponding conditions in the Part 70 renewal permit.

- b. Ambient air quality monitoring for particulate matter shall be operated, calibrated, and maintained in accordance with the State of Arizona Quality Assurance Manual at the following sites: Meteorological Tower and Environmental Laboratory.

The PM₁₀ ambient monitoring requirement has been eliminated from the Part 70 renewal permit due to the following reasons:

- (1) On May 15, 1991, the Cholla plant area was designated as an attainment area for all criteria pollutants including PM₁₀. The PM₁₀ ambient monitoring requirement was imposed prior to the designation date.
- (2) The original locations of the monitors were by the coal pile site, and the monitoring data were used to verify the modeling results for the coal piles. The monitors were relocated, since then, far away from the coal piles. There is no need to retain the monitors.
- (3) AQD, Assessment Section suggests that the PM₁₀ ambient monitoring requirement be eliminated.

4. Operating Permit No. 0357-88

This permit was for the renewal of permit No. 0330-85. Some of the relevant conditions of this permit are as follows:

- a. The Permittee shall operate the facilities in compliance with the following emission limits:

Pollutant	Unit 1	Unit 2	Unit 2/3	Unit 3	Unit 4	Material Handling
PM, lb/MBtu	1.02 Q ^{0.769} lb/hr	0.1		0.1	0.1	
SO ₂ , lb/MBtu	1.0	0.8	0.8	1.2	0.8	
NO _x , lb/MBtu		0.7		0.7	0.7	
Opacity, %	40	20		20	20	40

- b. All equipment, facilities, and systems used to achieve compliance with the terms and conditions of the permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.
- c. The Permittee shall operate and maintain dust suppression methods to control fugitive dust from the coal handling and storage facilities. Dust suppression methods shall include: chemical treatment, water treatment or equivalent means.
- d. Perform CEM and provide quarterly reports to the OAQ in accordance with A.A.C. R9-3-313 and Subpart D.
- e. Permittee shall maintain and operate an ambient total suspended particulate (TSP) sampler at the existing Joseph City site. All samplers shall operate at least every sixth day, coinciding with the national particulate sampling schedule.
- f. Permittee shall maintain and operate an ambient fine-particulate sampling network consisting of no less than 2 ambient samplers and 1 meteorological monitoring system. - Sites for the ambient samplers shall be at the existing Joseph City and Met Tower sites. The site for the meteorological monitoring system shall be at the Met Tower site.
- g. Within 210 -270 days after permit issuance, Permittee shall conduct mass emissions tests on Unit Nos. 1-4 boiler tail stacks. Tests shall be conducted for Sulfur Dioxide, Nitrogen Oxides, and Particulate Matter (PM). Within the same period, Permittee shall also conduct a particulate size characterization test. Specific size characterization shall be made in the 0 - 2.5 micron range and the 2.5 - 10 micron range. In addition, the particulates in each group shall be analyzed for at least the following elements and anions: aluminum, arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, manganese, mercury, nickel, phosphorus, potassium, selenium, silica, strontium, sulfur, titanium, vanadium, zinc and zirconium.

All conditions listed above but (e) and (f) have been carried over in essence to the Part 70 renewal permit. Hence, they are hereby being replaced by the corresponding conditions in the Part 70 renewal permit.

The conditions (e) and (f) have been eliminated from the Part 70 renewal permit due to the following reasons:

- (1) On May 15, 1991, the Cholla plant area was designated as an attainment area for all criteria

pollutants including PM₁₀. The PM₁₀ ambient monitoring requirement was imposed prior to the designation date.

- (2) The original locations of the monitors were by the coal pile site, and the monitoring data were used to verify the modeling results for the coal piles. The monitors were relocated, since then, far away from the coal piles. There is no need to retain the monitors.
- (3) AQD, Assessment Section suggests that the PM₁₀ ambient monitoring requirement be eliminated.

5. PSD Permit No. M170843S1-98:

Some of the relevant conditions of this permit are as follows:

- a. Operate equipment in compliance with all the applicable conditions of A.A.C. R18-2-801.1(Subpart A), A.A.C. R18-2-801.3 (Subpart Da), and Consent Order of Abatement, Docket No. A-91-02.
- b. Emission limit on sulfur dioxide emissions of 0.8 lb/MMBtu from the Unit 2/3 stack.
- c. Emission limit on sulfur dioxide emissions of 0.8 lb/MMBtu and 90 percent reduction from the steam Unit 2.
- d. Use of compliance coal when Unit 3 is operated alone due to malfunction of Unit 2 or its air pollution control goes off-line.
- e. Performance test on Unit 2 and Unit 3 annually for SO₂.
- f. Continuation of operation of CEMS for monitoring SO₂ from each portion of Unit 2/3 consistent with 40 CFR 60.47a, except that no inlet monitor is required on the Unit 3 portion. The CEMS shall meet monitoring performance specifications required under 40 CFR 60, Appendix F, for compliance CEMS.

The conditions listed above have been in essence carried over to and replaced by the corresponding conditions in the Part 70 renewal permit, except the condition e, an annual performance test requirement for SO₂ emissions from Unit 2, which has been replaced by compliance SO₂ CEMS in the Part 70 renewal permit.

6. Installation Permit #1247:

- a. Modify and operate Unit 1 in compliance with all the applicable conditions of A.A.C. R18-2-503 and Consent Order of Abatement, Docket No. A-91-02.
- b. Modify and operate Unit 4 and associated control equipment in compliance with all the applicable conditions of A.A.C. R18-2-801.1, R18-2-801.2, R18-2-803; and Consent Order of Abatement, Docket No. A-91-02.
- c. Emission limit for sulfur dioxide emissions - 1.0 lb/MMBtu and 80% emission reduction from the Unit 1 stack using Lime Slurry FGD System.
- d. Emission limit for sulfur dioxide emissions - 0.8 lb/MMBtu from the Unit 4 stack.
- e. Annual performance tests on Units 1 and 4.
- f. Maintain and operate CEMS for monitoring SO₂ from each portion of Unit 1 & 4 consistent with R18-2-313 and 40 CFR 60.45.
- g. Install and operate the Lime Slurry Scrubbing systems on Units 1 & 4.

The conditions listed above have been in essence carried over to and replaced by the corresponding conditions in the Part 70 renewal permit.

7. Operating Permit No. M170397P3-00

This permit only incorporated the conditions from the previous operating permit no. 0357-88, installation permit no. 1247 and PSD permit no. M170843S1-98 and did not impose any new requirements.

8. Minor Permit Revision No. 1000720 to Operating Permit No. M170397P3-00

This revision eliminated condition XXIX from Operating Permit No. M170397P3-00 which required APS-Cholla to maintain a minimum of 32,000 tons of low sulfur coal in stock.

VII. PERIODIC MONITORING

Steam Unit 1

Opacity: Unit 1 is subject to a 40% opacity standard under A.A.C. R18-2-702.B.1. The Permittee is required under A.A.C. R18-2-313.C.1.a to maintain and operate a continuous monitoring system for opacity. The monitoring system is required to meet the requirements of A.A.C. R18-2-313.D.1, which references to 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 1.

SO₂: The source is subject to the sulfur dioxide standard of 1.0 lb/MMBtu heat input under A.A.C. R18-2-703.G.1 while burning coal. Compliance test results indicate that the unit is able to meet the standard. Please see the Section on Testing in this technical remarks document. The Permittee is required under A.A.C. R18-2-313.C.1.b to maintain and operate a continuous monitoring system for sulfur dioxide. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A through C.

The source is also subject under Installation Permit No. 1247 to meet 80% SO₂ removal efficiency through the use of the control device. While outlet SO₂ concentration is monitored by CEMS, the inlet SO₂ content is obtained daily using the delivered coal mine analysis for the coal loaded to Unit 1. Results of the daily analysis are compared against the daily average CEMS data for the succeeding day to determine compliance with the removal efficiency. The coal analysis approach was accepted by ADEQ in a letter, File No. 12192, which states that "ADEQ finds that the coal analysis...is an acceptable method for determining the inlet SO₂ emissions to the Unit 1 absorber". The approach was later amended into permit No. M170397P3-00.

NO_x: There is no standard for NO_x emissions from Unit 1 as it was built before May 30, 1972. NO_x monitoring is not required.

PM: The unit is subject to the particulate matter emissions standard set forth in A.A.C. R18-2-703.C.1. Compliance test results indicate that the unit is able to meet the PM emission standard.

Please see the Section on Testing in this technical remarks document. This permit requires a stack test every year plus periodically monitoring stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions. Although no data are available to precisely correlate opacity to particulate matter emissions, doing so would at least indicate potential problems with the air pollution control device. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices. A 3-hr rolling average opacity of 40% is established in the permit beyond which investigation of the control equipment needs to be initiated and possible corrective action implemented. Not making such investigation and corrective action could potentially hold the source in violation of the permit terms.

Steam Unit 2

Opacity: Unit 2 is subject to an opacity standard of < 20% except for one six-minute period per hour of not more than 27% opacity. The Permittee is required under 40 CFR 60.45(a) to maintain and operate a continuous monitoring system for opacity. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 1.

SO_x: The source is subject to the sulfur dioxide standard of 0.8 lb/MMBtu heat input and 90% removal efficiency. The Permittee is required to maintain and operate a SO₂ continuous monitoring system consistent with Subpart Da requirements at inlet and outlet of the sulfur dioxide control device that will be utilized to determine compliance with the sulfur dioxide emission and removal efficiency limit. The Subpart Da requirements imposed on Unit 2 sulfur dioxide monitoring are carried over from PSD Permit No. M170843S1-98. The SO₂ CEMS is required to meet the requirements of 40 CFR 60.13, 40 CFR 60, Appendix F, and 40 CFR 75, Appendix A through C.

In conjunction with the SO₂ CEMS on Unit 3, the source is also required to continuously monitor the megawatt weighted average emissions of sulfur dioxide from the common stack for Units 2 and 3 to determine compliance with a “bubbled” standard of 0.8 lb/MMBtu heat input set forth in PSD Permit No. M170843S1-98.

NO_x: The source is subject to the NO_x standard of 0.70 lb/MMBtu heat input in 40 CFR 60.44(a)(3) while burning coal. Compliance test results indicate that the unit is able to meet the standard. Please see the Section on Testing in this technical remarks document. The Permittee is required under 40 CFR 60.45(a) to maintain and operate a continuous monitoring system for NO_x. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A through C.

PM: Unit 2 is subject to the standard of 0.10 lb/MMBtu set forth in 40 CFR 60.42(a)(1). Compliance test results indicate that the unit is able to meet the standard. Please see the Section on Testing in this technical remarks document. This permit requires a stack test every year plus periodically monitoring stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions. Although no data are available to precisely correlate opacity to particulate matter emissions, doing so would at least indicate potential problems with the air pollution control device. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control

equipment in a manner consistent with good air pollution control practices. A 3-hr rolling average opacity of 20% is established in the permit beyond which investigation of the control equipment needs to be initiated and possible corrective action implemented. Not making such investigation and possible corrective action could potentially hold the source in violation of the permit terms.

Steam Unit 3

Opacity: Unit 3 is subject to an opacity standard of < 20% except for one six-minute period per hour of not more than 27% opacity. The Permittee is required under 40 CFR 60.45(a) to maintain and operate a continuous monitoring system for opacity. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 1.

SO_x: The source is subject to the sulfur dioxide standard of 1.2 lb/MMBtu heat input in A.A.C. R18-2-903.3.c.i while burning coal, pursuant to Installation Permit No. 1037. The Permittee is required to maintain and operate a SO₂ continuous monitoring system consistent with 40 CFR 60.47a ("Emission monitoring") to continuously monitor the sulfur dioxide emissions. The Subpart Da emission monitoring requirement imposed on Unit 3 sulfur dioxide monitoring is carried over from PSD Permit No. M170843S1-98. The SO₂ CEMS is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A through C.

In conjunction with the SO₂ CEMS on Unit 2, the source is also required to continuously monitor the megawatt weighted average emissions of sulfur dioxide from the common stack for Units 2 and 3 to determine compliance with a "bubbled" standard of 0.8 lb/MMBtu heat input set forth in PSD Permit No. M170843S1-98.

NO_x: Unit 3 is subject to the NO_x standard of 0.70 lb/MMBtu heat input in 40 CFR 60.44(a)(3) while burning coal. Compliance test results indicate that the unit is able to meet the NO_x standard. Please see the Section on Testing in this technical remarks document. Although the Permittee is exempted from installation of a continuous NO_x monitoring system under 40 CFR 60.45(b)(3), periodic monitoring for NO_x emissions is required under A.A.C. R18-2-306.A.3.b. The Acid Rain Program NO_x CEMS will be used to meet the periodic monitoring requirement. For QA/QC purpose, the monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A through C.

PM: Unit 3 is subject to a standard of 0.10 lb/MMBtu set forth in 40 CFR 60.42(a)(1). Compliance test results indicate that the unit is able to meet the standard. Please see the Section on Testing in this technical remarks document. This permit requires a stack test every year plus periodically monitoring stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions. Although no data are available to precisely correlate opacity to particulate matter emissions, doing so would at least indicate potential problems with the air pollution control device. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices. A 3-hr rolling average opacity of 20% is established in the permit beyond which investigation of the control equipment needs to be initiated and possible corrective action implemented. Not making such investigation and possible corrective actions could potentially hold the source in violation of the permit terms.

Steam Unit 4

- Opacity:** Unit 4 is subject to an opacity standard of < 20% except for one six-minute period per hour of not more than 27% opacity. The Permittee is required under 40 CFR 60.45(a) to maintain and operate a continuous monitoring system for opacity. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 1.
- SOx:** The source is subject to the sulfur dioxide standard of 0.8 lb/MMBtu heat input in A.A.C. R18-2-903.1 while burning coal. Compliance test results indicate that the unit is able to meet the standard. Please see the Section on Testing in this technical remarks document. The Permittee is required under 40 CFR 60.45(a) to maintain and operate a continuous monitoring system for sulfur dioxide emissions. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A through C.
- NOx:** Unit 4 is subject to the NOx standard of 0.70 lb/MMBtu heat input in 40 CFR 60.44(a)(3) while burning coal. Compliance test results indicate that the unit is able to meet the NOx standard. Please see the Section on Testing in this technical remarks document. Although the Permittee is exempted from installation of a continuous NOx monitoring system under 40 CFR 60.45(b)(3), periodic monitoring for NOx emissions is required under A.A.C. R18-2-306.A.3.b. The Acid Rain Program NOx CEMS will be used to meet the periodic monitoring requirement. For QA/QC purpose, the monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A through C.
- PM:** Unit 4 is subject to a standard of 0.10 lb/MMBtu set forth in 40 CFR 60.42(a)(1). Compliance test results indicate that the unit is able to meet the standard. Please see the Section on Testing in this technical remarks document. This permit requires a stack test every year plus periodically monitoring stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions. Although no data are available to directly correlate opacity to particulate matter emissions, doing so would at least indicate potential problems with the air pollution control device. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices. A 3-hr rolling average opacity of 20% is established in the permit beyond which investigation of the control equipment needs to be initiated and possible corrective actions implemented. Not making such investigation and possible corrective action could potentially hold the source in violation of the permit terms.

Fly Ash Handling

- Opacity:** The fly ash handling system is subject to the 40% opacity standard in A.A.C. R18-2-702.B.1. The permittee is required to make a weekly survey of the visible emissions from the entire fly ash handling system including all the enclosed transfer points, the exposed transfer points, and the baghouse.

If there are no visible emissions, the Permittee does not have to record or report the result of the survey. If the Permittee finds that on an instantaneous basis the visible emissions are in excess of 40% opacity, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of 40% then the Permittee is required to report it as excess emissions. If the Permittee finds that the visible emissions are less than 40% opacity, then the Permittee is required to record the source of emission, date, time, and result of the test.

PM: The source is subject to the particulate matter standard in A.A.C. R18-2-730.A.1. The permittee is required to maintain and operate the fly ash silo baghouse in accordance with the manufacturer's specification. Permittee is also required to hold these specifications on file. Emissions related maintenance work needs to be recorded. Performance tests for the PM emissions are not required in the permit on a regular basis. Compliance with the PM standard is ensured through proper operation and maintenance of the baghouse as specified by the manufacturer.

Coal Handling

Opacity: The coal preparation plant is subject to the 40% opacity standard in A.A.C. R18-2-702.B.1. The permittee is required to make a weekly survey of the visible emissions from the entire coal plant including all the enclosed transfer points, the exposed transfer points, the coal storage piles, and the dust collectors.

If there are no visible emissions, the Permittee does not have to record or report the result of the survey. If the Permittee finds that on an instantaneous basis the visible emissions are in excess of 40% opacity, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of 40% then the Permittee is required to report it as excess emissions. If the Permittee finds that the visible emissions are less than 40% opacity, then the Permittee is required to record the source of emission, date, time, and result of the test.

PM: The source is subject to the particulate matter standard in A.A.C. R18-2-716.B. The permittee is required to maintain and operate the spraying bars and chemical dust suppressant in accordance with the manufacturer's specification. Permittee is also required to keep these specifications on file. Emissions related maintenance work need to be recorded. Performance tests for PM emissions from crushers are not required in the permit provided that the crushing operation undergoes in an enclosure structure.

Lime Handling and Slaking

Opacity: The lime handling and slaking system is subject to the 40% opacity standard in A.A.C. R18-2-702.B.1. The Permittee is required to make a weekly survey of the visible emissions from the entire lime handling and slaking system including all the enclosed transfer points, the exposed transfer points, the lime silo baghouse vent, and the lime slaker wet scrubber vent.

If there are no visible emissions, the Permittee does not have to record or report the result of the survey. If the Permittee finds that on an instantaneous basis the visible emissions are in excess of 40% opacity, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of 40% then the Permittee is required to report it as excess emissions. If the Permittee finds that the visible emissions are less than 40% opacity, then the Permittee is required to record the source of emission, date, time, and result of the test.

PM: The source is subject to the particulate matter standard in A.A.C. R18-2-730.A.1. The Permittee is required to maintain and operate the lime silo baghouse and lime slaker vent wet scrubber in accordance with the manufacturer's specification. Permittee is also required to retain these specifications on file. Emissions related maintenance work need to be recorded. Performance tests for the PM emissions are not required in the permit on a regular basis since

engineering calculation indicates that the PTE is fractional as compared with the allowable (only in magnitude of 0.5-0.6 %, see Table 5 of this document). Compliance with PM standard is ensured through proper operation and maintenance of the baghouse and wet scrubber as specified by the manufacturer.

Cooling Towers 3 and 4

Opacity: The cooling towers are subject to the opacity standard of < 40% in the general visible emissions rule under A.A.C. R18-2-702.B.

PM: The unit is also subject to particulate matter emissions standard in A.A.C. R18-2-730A.2. The particulate matter emissions from the cooling towers are negligible compared to the potential to emit as could be seen from Table 5 in Section III of this document. The PTE is only about 6% of the allowable emissions and hence there is no need for monitoring requirements in the permit. For the same reason, performance tests are not required in the permit for the PM emissions. Performance testing with Method 5 is also deemed infeasible considering the unusual size condition of the cooling towers and extremely high moisture of the air flow.

Non-Point Sources

The standards in Article 6 are applicable requirements for non-point sources. The following sources will be monitored:

1. Driveways, parking areas, vacant lots
2. Unused open areas
3. Open areas (Used, altered, repaired, etc.)
4. Construction of roadways
5. Material transportation
6. Material handling
7. Storage piles
8. Stacking and reclaiming machinery at storage piles

All of these areas must comply with the opacity limitation of 40%. The control measures for these sites include gravel for driveways(1) and native vegetation for unused open areas(2). Most of the other sources require control measures of dust suppressants and/or wetting agents(3-8). Material transportation and storage piles also include covering the material (5 and 7), while stacking and reclaiming includes minimizing fall distance (8). APS has indicated in the application, that rare instances of open burning may occur. The condition in the permit directs APS to obtain a permit from ADEQ, or the local officer in charge of issuing burn permits.

Monitoring and recordkeeping requirements for driveways (1) includes maintaining the gravel, and keeping a log of dates new gravel is added. Unused open areas (2) includes a monthly status of the areas and dates fresh vegetation was added. All other non-point sources (3-8) require a record of the date and type of activity performed, and the type of controls used. Also, monitoring requirements for the applicable open

burning rule may be satisfied by keeping all open burn permits on file.

Other Periodic Activities

Abrasive Sand Blasting

APS Cholla has indicated in the permit application that there might be a few occasions on which abrasive sand blasting activities are conducted on-site. R18-2-726 and R18-2-702 (B) are applicable requirements, and as such have to be included in the permit. It was decided to prescribe minimal monitoring requirements for this activity.

Spray Painting

APS Cholla has indicated in the permit application that there might be a few occasions on which spray painting activities are conducted on-site. R18-2-727 and R18-2-702(B) are applicable requirements, and as such, have to be included in the permit. R18-2-727(A) and R18-2-727(B) are included in the approved State Implementation Plan (SIP). R18-2-727(c) and R18-2-727(D) are also a part of the approved SIP. They are present in the definitions section of the SIP as R9-3-101.117. EPA approved SIP provision R9-3-527.C is not present in the amended rule. However, R9-3-527.C is an applicable requirement, and is federally enforceable till the current State SIP is approved by the EPA. It was decided to prescribe minimal monitoring requirements for this activity.

Roadway and Site Cleaning Machinery

As a means of demonstrating compliance with the Article 8 requirements, the Permittee has been required to keep a record of all emissions related maintenance activities performed on Permittee's roadway and site cleaning machinery stationed at the facility as per manufacturer's specifications.

Asbestos Demolition/Renovation

As a means of demonstrating compliance with the requirements for asbestos demolition/renovation activities, the Permittee has been required to keep a record of all relevant paperwork on file. The relevant paperwork shall include but not be limited to the "NESHAP Notification for Renovation and Demolition Activities" form, and all supporting documents.

Nonvehicle Air Conditioner Maintenance and/or Services

As a means of demonstrating compliance with the Title VI requirements, the Permittee has been required to keep a record of all relevant paperwork to the applicable requirements of 40 CFR 82 - Subpart F on file.

VIII. TESTING REQUIREMENTS

Permittee is required to conduct annual performance tests for stack emissions of opacity, particulate matter, sulfur dioxide, and nitrogen oxides from all steam boiler units to demonstrate, on an annual basis, compliance with the respective emissions standards, except for sulfur dioxide emissions from units 2 and 3 stacks where SO₂ emissions data collected from the SO₂ CEMS can and will be used to determine compliance pursuant to 40 CFR 60, Subpart Da, and for nitrogen oxides emissions from unit 1 stack where there is no applicable standard for NO_x emissions. Compliance with opacity standards is determined using EPA Reference Method

9. Performance tests for all pollutants are conducted using the procedures and methods contained in the Arizona Testing Manual or 40 CFR 60, Appendices A through F.

IX. USED OIL OR USED OIL FUEL BURNING

Unit 4 also co-fires with coal a small quantity of on-site generated used oil and/or used oil fuel for energy recovery purposes. Total heat input from this activity is typically less than 0.1 percent of total heat input to Unit 4 on an annual basis. The oil burned is required to be on specification as follows. To assure the standard to be met, Cholla is required to run sample testing semiannually for the used oil prior to burning.

- A. The flash point of the oil does not fall below 100° F;
 B. The oil does not have following constituents in excess of the following allowable levels:

1. Arsenic 5 ppm
2. Cadmium 2 ppm
3. Chromium 10 ppm
4. Lead 100 ppm
5. PCBs 2 ppm

X. INSIGNIFICANT ACTIVITIES

The insignificant activities are determined in the following table:

No.	Insignificant Activities	Pollutants	Verification	Comments
1	Scale Inhibitor Storage Tank	HEDP	yes	A.A.C. R18-2-101.54.j
2	Scale Inhibitor Storage Tank	HEDP,ZN&PHOSPHONATE	yes	A.A.C. R18-2-101.54.j
3	Condensate Storage Tanks	PM-10	yes	A.A.C. R18-2-101.54.j
4	Aux. Cooling System Clam Treatment	CLAM-TROL CT-1	yes	A.A.C. R18-2-101.54.j
5	Chemical Day Tanks (3 Tanks/unit)	NH3, PO4, N2H4	yes	A.A.C. R18-2-101.54.j
6	Lake Intake Clam Treatment	CLAM-TROL CT-1	yes	A.A.C. R18-2-101.54.j
7	Stack Gas Analyzers+ Gas Cylinders	SO2,NO,FLUE GAS	yes	A.A.C. R18-2-101.54.i
8	Potable Water Head Tanks	CHLORINE	yes	A.A.C. R18-2-101.54.j
9	Service Water Tanks	CONTAINS WELL WATER	yes	A.A.C. R18-2-101.54.j
10	De-aerator Tanks	TRACE BOILER CHEMICALS	yes	A.A.C. R18-2-101.54.j
11	Turbine Lube Oil Tanks	OIL VAPORS (VOC'S)	yes	A.A.C. R18-2-101.54.j
12	Turbine Lube Oil Vapor Extractors	OIL VAPORS (VOC'S)	no	A.A.C. R18-2-730.G
13	Generator Seal Oil Vapor Extractors	OIL VAPORS (VOC'S)	no	A.A.C. R18-2-730.G
14	Equip. Lube Oil Storage Tanks	OIL VAPORS (VOC'S)	yes	A.A.C. R18-2-101.54.c
15	Sedi. Pond Transfer Pump Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
16	Sludge Tanks(1)	PM-10	yes	A.A.C. R18-2-101.54.j
17	Demister Water Tank	PM-10	yes	A.A.C. R18-2-101.54.j
18	Diesel Fuel Storage Tank (Small)	FUEL OIL (VOC'S)	yes	A.A.C. R18-2-101.54.j
19	Fuel Oil Storage Tank (Large)	FUEL OIL (VOC'S)	414,540 gal.	A.A.C. R18-2-101.54.j
20	Gasoline, Diesel Storage Tank(ast)	GAS, DIESEL (VOC'S)	yes	A.A.C. R18-2-101.54.b, c

21	Acid and Caustic Tanks (Empty)	H2SO4, NAOH	yes	A.A.C. R18-2-101.54.j
22	Acid Tank	H2SO4	no	A.A.C. R18-2-730.G
23	Glycol Storage Tank	GLYCOL	yes	A.A.C. R18-2-101.54.j
24	Glycol Expansion Tank(2)	GLYCOL	yes	A.A.C. R18-2-101.54.j
25	Process Water Tank	PM-10	yes	A.A.C. R18-2-101.54.j
26	Boiler Feed Pump Seal Water Tank	PM-10	yes	A.A.C. R18-2-101.54.j
27	Vacuum Pumps	PM-10	yes	A.A.C. R18-2-101.54.j
28	Air Ejectors	PM-10	yes	A.A.C. R18-2-101.54.j
29	Absorber Feed Pumps Bearings	LUBE OIL VAPORS(VOC'S)	yes	A.A.C. R18-2-101.54.j
30	Scrubber Feed Pumps	LUBE OIL VAPORS(VOC'S)	yes	A.A.C. R18-2-101.54.j
31	Fire Water Diesel Pumps(2)	DIESEL FUMES(VOC'S)	yes	A.A.C. R18-2-101.54.j
32	Fire Water Tanks (2)	WATER	yes	A.A.C. R18-2-101.54.j
33	Fly Ash Blowers Oil Reservoirs	LUBE OIL VAPORS(VOC'S)	yes	A.A.C. R18-2-101.54.j
34	Unit 1. 200 KW Allis-Chalmers Emergency Diesel Generator, Model Ser-R2799-707, S/N AZS097RM Unit 2. 750 KW Beloit Power Emergency Diesel Generator, S/N 604588-R1 Unit 3. 750 KW Beloit Power Emergency Diesel Generator, S/N 504588-R2 Unit 4. 900 KW Beloit Power Emergency Diesel Generator, S/N 504637-R1	DIESEL FUEL VAPORS(VOC'S). >325 BHP. 155 BARRELS. EMERGENCY/STAND-BY USE ONLY.	yes	A.A.C. R18-2-101.54.h
35	Locomotives(2)	DIESEL FUEL VAPORS (VOC'S)	no	A.A.C. R18-2-802
36	Street Cleaner	PM-10, VOC'S	no	A.A.C. R18-2-802
37	Road Grader from Childs/Irving Plant	PM-10, VOC'S	no	A.A.C. R18-2-802
38	Boiler Blowdowns	BOILER CHEMICALS	yes	A.A.C. R18-2-101.54.j
39	Gland Steam Condenser Exhausters	STEAM	yes	A.A.C. R18-2-101.54.j
40	Coal Silo Atmospheric Openings(5)	COAL DUST(PM-10)	no	A.A.C. R18-2-716.B.1
41	Coal Silo Vent Exhaust Fan	COAL DUST(PM-10)	no	A.A.C. R18-2-716.B.1
42	Fly Ash Silo Baghouse	FLY ASH(PM-10)	no	A.A.C. R18-2-730.A.1
43	Lime Silo Baghouse	CAO (PM-10)	no	A.A.C. R18-2-730.A.1
44	Lime Unloading	CAO (PM-10), VOC'S	no	A.A.C. R18-2-730.A.1
45	Reagent Feed Tanks Pumps(4)	VOC'S	yes	A.A.C. R18-2-101.54.j
46	Reagent Storage Tank Pumps (2)	VOC'S	yes	A.A.C. R18-2-101.54.j
47	Elemental Sulfur Tank	PM-10	yes	A.A.C. R18-2-101.54.j
48	Elemental Sulfur Tank Pump	VOC'S	yes	A.A.C. R18-2-101.54.j
49	Bottom Ash Trans., Makeup Tank	PM-10,VOC'S	yes	A.A.C. R18-2-101.54.j

50	Pyrite Transfer Tank	PM-10	yes	A.A.C. R18-2-101.54.j
51	EHC Reservoir	EHC FLUID VAPORS(VOC'S)	yes	A.A.C. R18-2-101.54.j
52	Chlorine Gas Tanks	CL2 GAS	no	112(r)
53	Lime Slaking Vent Wet Scrubber	CAO(PM-10)	no	A.A.C. R18-2-730.A.1
54	Cooling Towers	PM-10,CL2,H2SO4,DEFOAM	no	A.A.C. R18-2-730.A.1
55	Painting Hood	PM-10, VOC'S	no	A.A.C. R18-2-730.F
56	Bathroom Vents	NON-METHANE HYDROCR.	yes	A.A.C. R18-2-101.54.j
57	Aerosol Paints/brushes	VOC'S	no	A.A.C. R18-2-730.F
58	Woodworking	PM-10	yes	A.A.C. R18-2-101.54.j
59	Maintenance Shop Activities	PM-10, VOC'S	yes	A.A.C. R18-2-101.54.j
60	Electric Water Heaters		yes	A.A.C. R18-2-101.54.j
61	Electric Space Heaters		yes	A.A.C. R18-2-101.54.j
62	Battery Charging Areas	H2SO4	yes	A.A.C. R18-2-101.54.j
63	Breakers		yes	A.A.C. R18-2-101.54.j
64	Lab Chemicals	HOOD VENTS	yes	A.A.C. R18-2-101.54.i
65	ESPs	OZONE	no	Under permit term
66	Kitchen Hoods	VOC'S	yes	A.A.C. R18-2-101.54.j
67	Charcoal Grills	PM-10,VOC'S	yes	A.A.C. R18-2-101.54.j
68	Welding Hood Exhaust	PM-10	yes	A.A.C. R18-2-101.54.j
69	Mercury Recovery Hood	HG	yes	A.A.C. R18-2-101.54.j
70	Pulveriser Pyrite Chutes(5)	PM-10	yes	A.A.C. R18-2-101.54.j
71	Insulation Shop Vent	PM-10	yes	A.A.C. R18-2-101.54.j
72	Boiler Casing Leaks	PM-10, SO2, NOX	yes	A.A.C. R18-2-101.54.j
73	Bottom Ash Transfer Sump	PM-10, BOILER CLEANING	yes	A.A.C. R18-2-101.54.j
74	Coal Lab Vent	PM-10	yes	A.A.C. R18-2-101.54.i
75	Misc. Steam Vents(6 -8)	BOILER CHEMICALS	yes	A.A.C. R18-2-101.54.j
76	Natural Gas Line Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
77	Parts Cleaners	EPA 2000 (VOC'S)	yes	A.A.C. R18-2-101.54.j
78	Welding Rod Fumes	PM-10	yes	A.A.C. R18-2-101.54.j
79	Acetylene Cylinders	ACETYLENE	no	112(r)
80	Boiler Drains and Vents	PM-10	yes	A.A.C. R18-2-101.54.j
81	Lake Intake Closed Sump	VOC'S	yes	A.A.C. R18-2-101.54.j
82	Lake Intake Trash Rakes	VOC'S	yes	A.A.C. R18-2-101.54.j
83	Paint Shop Hood	PM-10, VOC'S	no	A.A.C. R18-2-730.F
84	Locomotive Building Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
85	Satellite Oil/haz Waste Areas	VOC'S	yes	A.A.C. R18-2-101.54.j
86	Lube Rack(s), Lube Building Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
87	Oil Drip Racks	VOC'S	yes	A.A.C. R18-2-101.54.j
88	Portable Heaters, Propane Tanks	VOC'S	yes	A.A.C. R18-2-101.54.j
89	Track Straightener Machine	VOC'S	yes	A.A.C. R18-2-101.54.j
90	Coal Crusher Tower Lube System	VOC'S	yes	A.A.C. R18-2-101.54.j
91	Cooling Towers Fan Motors Vents-18	VOC'S	yes	A.A.C. R18-2-101.54.j
92	Unit Condensate Pump Vents(2)	VOC'S	yes	A.A.C. R18-2-101.54.j

93	Electrical Hydraulic Control System Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
94	Boiler Feed Pump(s) Oil Cooling Vents(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
95	Instrument Air Compressor Vents	VOC'S	yes	A.A.C. R18-2-101.54.i
96	Station Air Compressors	VOC'S	yes	A.A.C. R18-2-101.54.j
97	Turbine Oil Cooling Vent(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
98	Closed Cooling Water Tank Vent	PM-10	yes	A.A.C. R18-2-101.54.j
99	ID/FD Fans Oil Cooling Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
100	Air Preheater Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
101	Air Preheater Guide Bearing Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
102	O/W Separators (2)	VOC'S	yes	A.A.C. R18-2-101.54.j
103	Control Room Bathroom Vents	NON-METHANE HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
104	Laboratory Hoods	PM-10, VOC'S	yes	A.A.C. R18-2-101.54.j
105	Bathroom Vents by Labs	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
106	Electric & Instrument Battery Charging	H2SO4	yes	A.A.C. R18-2-101.54.j
107	Main Transformers (Plus the Two Following Items)	VOC'S	yes	A.A.C. R18-2-101.54.j
108	Stand -By/Auxiliary Transformers	VOC'S	yes	A.A.C. R18-2-101.54.j
109	Switchyard Transformers/gear	VOC'S	yes	A.A.C. R18-2-101.54.j
110	Sewage Treatment Plant (No incinerator)	CL2, H2S, VOC'S	yes	A.A.C. R18-2-101.54.j
111	PWS Hypochlorinators	CL2	yes	A.A.C. R18-2-101.54.j
112	Rotary Blower Pump Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
113	Degasifier Transfer Pump Vent(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
114	Cooling Water Sump Pump Vents(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
115	PWS Booster Pump Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
116	Electro-dryer Pump Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
117	Flammable Storage Cabinets	VOC'S	no	112(r)
118	Glycol Feed Pumps Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
119	Emergency Cooling Water Pumps(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
120	Glycol Circ. Pumps Vents(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
121	Clear Well Sump Pump	VOC'S	yes	A.A.C. R18-2-101.54.j
122	Seal Oil Pumps(3)	VOC'S	yes	A.A.C. R18-2-101.54.j
123	Turbine Lube Oil Pumps(3)	VOC'S	yes	A.A.C. R18-2-101.54.j
124	AC Equipment	CFC'S /HCFC'S	yes	A.A.C. R18-2-101.54.j
125	Misc. Lube Oil Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
126	Feedwater Heater Shell Side Vents	PM-10	yes	A.A.C. R18-2-101.54.j
127	Ash Sluice Vents (3)	PM-10	yes	A.A.C. R18-2-101.54.j
128	Mech. Dust Collectors	PM-10	no	Under permit term
129	Filter Cleaning Bldg.	PM-10	yes	A.A.C. R18-2-101.54.j
130	Scrubber Control Room Vent	PM-10	yes	A.A.C. R18-2-101.54.j
131	Absorber Tank	PM-10 (LIME)	no	A.A.C. R18-2-730.A.1

132	Absorber Feed Pump (3)	VOC'S	yes	A.A.C. R18-2-101.54.j
133	Absorber Feed Pump(4), Scrubber Feed Pump(4)	VOC'S	yes	A.A.C. R18-2-101.54.j
134	Quencher Feed Pump(2)	VOC'S	yes	A.A.C. R18-2-101.54.j
135	Portable Welders	PM-10	yes	A.A.C. R18-2-101.54.j
136	Absorber Area Sump Pump Vent (2)	VOC'S	yes	A.A.C. R18-2-101.54.j
137	Sludge Disposal Pumps (4)	VOC'S	yes	A.A.C. R18-2-101.54.j
138	Flyash Hopper Diffuser Blowers (2)	VOC'S	yes	A.A.C. R18-2-101.54.j
139	Warehouses (2) Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
140	WAREHOUSES (2) BLDG VENTS	PM-10	yes	A.A.C. R18-2-101.54.j
141	Bechtel Construction Bldg. Br Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
142	Auto Shop Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
143	General Water Bldg. Vent	PM-10, VOC'S	yes	A.A.C. R18-2-101.54.j
144	Slurry Disposal Bldg. Vents	PM-10, VOC'S	yes	A.A.C. R18-2-101.54.j
145	Slurry Disposal Pumps Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
146	Bottom Ash Disposal Vents	VOC'S	yes	A.A.C. R18-2-101.54.j
147	Coal Handling Bldg. Vents	N-M HYDROCARBONS, PM-10	yes	A.A.C. R18-2-101.54.j
148	Paint Shop Bldg. Vent	PM-10, VOC'S	no	A.A.C. R18-2-730.F
149	E&I Room Vents	H2SO4	yes	A.A.C. R18-2-101.54.j
150	Machine Shop Vent	PM-10,VOC'S	yes	A.A.C. R18-2-101.54.j
151	Maintenance Bldg. Vents	PM-10, VOC'S	yes	A.A.C. R18-2-101.54.j
152	Maintenance Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
153	Planning Bldg. Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.i
154	Admin. Bldg. (Old) Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
155	Admin. Bldg. (New) Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
156	Admin. Bldg (Old) Water Heater Vents		yes	A.A.C. R18-2-101.54.j
157	Admin. Bldg (New) Water Heater Vents		yes	A.A.C. R18-2-101.54.j
158	Portable Generators/pumps	VOC'S	yes	A.A.C. R18-2-101.54.j
159	Stack Test Sampling Trailer	SO2, NOX, PART.	yes	A.A.C. R18-2-101.54.i
160	Guard Houses (2)	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
161	Security Building Bathroom Vents	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
162	Microwave Building Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
163	Unit 1 Sedi Pump Vent	VOC'S	yes	A.A.C. R18-2-101.54.j
164	Unit 2,3, &4 Batch Oil Tank	VOC'S	yes	A.A.C. R18-2-101.54.j
165	Soot Blowing Air Compressors	PM-10, VOC'S	yes	A.A.C. R18-2-101.54.j
166	Building and Yard Maintenance Fac.	PM-10,VOC'S	yes	A.A.C. R18-2-101.54.a
167	500 Kv Control Building Vent	N-M HYDROCARBONS	yes	A.A.C. R18-2-101.54.j
168	Bulldozer Maintenance Shed	VOC'S	yes	A.A.C. R18-2-101.54.j
169	Cathodic Protection System	CL2	yes	A.A.C. R18-2-101.54.j
170	Freon Recovery Equipment	CFC's/HCFC'S	no	602 (a) & (b)
171	Accidental Releases	VARIOUS	no	112(r)
172	Spray Painting - Architectural Appl.	PM-10,VOC'S	no	A.A.C. R18-2-727
173	Sand Blasting	PM-10	no	A.A.C. R18-2-726

